

## DOCUMENT RESUME

ED 124 329

RC 009 230

AUTHOR                    Marshall, Kimball P.; Cosby, Arthur G.  
 TITLE                    Antecedents of Early Marital and Fertility Behavior:  
 INSTITUTION            Impact of Adolescent Attitudes on Early Marriage and  
 SPONS AGENCY            Fertility.  
 REPORT NO              Texas A and M Univ., College Station, Texas  
 PUB DATE              Agricultural Experiment Station.  
 NOTE                    Cooperative State Research Service (DOA), Washington,  
 D.C.  
 TAES-H-2811; USDA(CSRS)-S-81  
 Apr 76  
 33p.; Paper presented at the Annual Meeting of the  
 Southwestern Sociological Society (Dallas, Texas,  
 April 1976)  
 EDRS PRICE            MF-\$0.83 HC-\$2.06 Plus Postage.  
 DESCRIPTORS            Academic Aspiration; \*Adolescents; Aspiration;  
 \*Attitudes; Birth Rate; \*Family Planning; \*Females;  
 High School Students; Literature Reviews;  
 Longitudinal Studies; \*Marriage; Models; Occupational  
 Aspiration; Reproduction (Biology); \*Rural Youth;  
 Social Development; Socioeconomic Influences

## ABSTRACT

A process model which included the influences of social origin, encouragement, and the formation of adolescent period attitudes as antecedents of early marital and fertility behavior was constructed and evaluated using three-wave panel data obtained from 176 nonmetropolitan females from selected Alabama, Georgia, Texas, and South Carolina high schools. Developed to integrate demographic and status attainment perspectives, the model depicted a network of relationships in which the exogenous factor, social origins, influenced young adult timing of marriage and fertility through a complex of intervening variables. The model was evaluated within a path analytic framework. Respondents were initially contacted in their high school sophomore year (1966-67) when family background and significant other encouragement data were obtained. Recontacted as seniors in 1968, respondents were questioned regarding status aspirations. In 1972, approximately four years after graduation, respondents were contacted for a third time and levels of attainment and procreation were recorded. The model "explained" 28% of the variation in early fertility indicating the importance of marital-timing, adolescent marital plans, and educational desires as important antecedents of early fertility. Fertility desires during adolescence were not found to be related to either time of marriage or actual early fertility. (Author/NQ)

Documents acquired by ERIC include many informal unpublished materials not available from other sources. ERIC makes every effort to obtain the best copy available. Nevertheless, items of marginal reproducibility are often encountered and this affects the quality of the microfiche and hardcopy reproductions ERIC makes available via the ERIC Document Reproduction Service (EDRS). EDRS is not responsible for the quality of the original document. Reproductions supplied by EDRS are the best that can be made from the original.

ED124329

ANTECEDENTS OF EARLY MARITAL AND FERTILITY BEHAVIOR:  
IMPACT OF ADOLESCENT ATTITUDES  
ON EARLY MARRIAGE AND FERTILITY\*

by

Kimball P. Marshall\*\*

and

Arthur G. Cosby\*\*

Texas A&M University

U.S. DEPARTMENT OF HEALTH,  
EDUCATION & WELFARE  
NATIONAL INSTITUTE OF  
EDUCATION

THIS DOCUMENT HAS BEEN REPRO-  
DUCED EXACTLY AS RECEIVED FROM  
THE PERSON OR ORGANIZATION ORIGIN-  
ATING IT. POINTS OF VIEW OR OPINIONS  
STATED DO NOT NECESSARILY REPRE-  
SENT OFFICIAL NATIONAL INSTITUTE OF  
EDUCATION POSITION OR POLICY

\*Paper read at the Southwestern Sociological Society Annual Meeting, April, 1976, Dallas, Texas. Development of the report was sponsored by the Texas Agricultural Experiment Station and contributes both to TAES Project H-2811 and to USDA (CSRS) Regional Research Project S-81, "Development of Human Resource Potentials of Rural Youth in the South and to Their Patterns of Mobility." Information for analysis was obtained by pooling data collected under grants provided by the Agricultural Experiment Stations of Alabama, Georgia, South Carolina, and Texas. Appreciation is expressed to Sharon Hazelton, Kathy Oeffinger, Laura Grayburn, and Connie Peters. The authors assume responsibilities for all errors.

\*\*Department of Rural Sociology, Texas A&M University;  
College Station, Texas 77843

## ABSTRACT

### ANTECEDENTS OF EARLY MARITAL AND FERTILITY BEHAVIOR: THE IMPACT OF ADOLESCENT ATTITUDES ON EARLY MARRIAGE AND FERTILITY

A process model which included the influences of social origin, encouragement, and the formation of adolescent period attitudes as antecedents of early marital and fertility behavior was constructed and evaluated using three-wave panel data obtained from 176 non-metropolitan females. The model "explained" 28% of the variation in early fertility indicating the importance of marital-timing, adolescent marital plans and educational desires as important antecedents of early fertility. Fertility desires during adolescence were not found to be related to either time of marriage or actual early fertility. Population policy implications of these findings were discussed.

ANTECEDENTS OF EARLY MARITAL AND FERTILITY BEHAVIOR:  
THE IMPACT OF ADOLESCENT ATTITUDES ON EARLY MARRIAGE AND FERTILITY

Awareness of sex role behavior as an important component of population planning has led to the policy recommendations in which encouragement of female educational and occupational attainment is regarded as a mechanism for reducing fertility desires and, subsequently, actual levels of fertility (Blake, 1965; Davis, 1967).

Unfortunately, previous research has largely neglected to demonstrate processes by which fertility aspirations and related attitudes are developed and the relationships of these to early childbearing behavior (Kuvlesky and Obordo, 1972). As an approach to discovering such processes, the merger of status attainment modeling (Blau and Duncan, 1967; Duncan et al., 1972; Sewell et al., 1969, 1970; Haller and Portes, 1973) with certain population policy recommendations (Blake, 1965, 1969; Davis, 1967) should prove useful. The present study attempts to supplement existing knowledge by focusing on antecedents of familial and status aspirations of young women and their subsequent marital and fertility patterns. The young adult population is emphasized since recent patterns of American fertility are largely attributable to timing of marriage and childbearing among this age group (Campbell, 1974). Specifically, a process model taking into account social origin influences and adolescent attitudes has been developed, using the status attainment paradigm, and evaluated, utilizing data from a panel of non-metropolitan Southern women.

2

In a series of articles Blake (1965, 1966, 1967, 1969; Blake and Das Gupta, 1972) has maintained that fertility reductions cannot be accomplished solely through limitation of fertility to expressed desires and has argued for direction of population policy toward reduction in family size desires. One means by which such reductions might be accomplished is through demonstration of the advantages of gainful employment to potential mothers (Blake, 1965). Davis (1967) has advanced a similar position. While observing the need for inquiry into sources of fertility desires, Davis has advocated (1) the de-emphasis of familial roles, (2) the redefinition of sex roles through the influence of the educational system, and (3) the advancement of educational and occupational opportunities available to women. In his view, the implementation of these policies would encourage marital postponement and reduce both desired and actual levels of fertility.

Unfortunately, such policy recommendations are largely unguided by empirical research explicitly considering antecedents of reproductive desires or research demonstrative of effects of reproductive desires on actual fertility patterns (Davis, 1967). Actually, there is a dearth of empirical information bearing on such potentially important antecedent influences as early socialization, encouragement from significant others, and attitude formation as they impact upon fertility. Fawcett (1970) in his overview of Psychology and Population addresses similar topics in his call for "basic studies to meet long term needs."

3

"The questions that need investigating are so basic that a recitation of them seems lacking in substance. What are the factors that lead most people to choose marriage over non-marriage, and children over childlessness? How are decisions made about when to marry and, after marriage, when to have children? If these vital matters are not the result of rational decisions, why is that so? (Fawcett, 1970, p. 105)."

Fawcett, furthermore, maintains that the "answers to such questions, even partial answers, are an essential ingredient in the design of population policy and programs." The ambition of the present research is to provide admittedly limited information of this type. It is hoped that the introduction of the status attainment perspective with panel data will direct attention to social psychological processes leading to early reproductive behavior, and thus, more firmly link population policy to empirical research.

#### Previous Research

In terms of the problem being addressed, one difficulty in social demographic research bearing on variations in fertility aspirations and patterns has been the emphasis on studies of women in the middle and late childbearing years (Freedman et al., 1954; Nye and Hoffman, 1963; Rosen and Simmons, 1971; Kiser, 1962; Ridley, 1959; Westoff et al., 1961; Bumpass and Westoff, 1970). Despite ex post facto designs, such studies do suggest associations of occupational and educational attainments of wives with family planning and small family sizes (Ridley, 1959; Pratt and Whelpton, 1958; Kupinsky, 1971; Duncan, 1965; Astin, 1969; Holstrom, 1972; Carleton, 1965). Furthermore, Stycos (1952; Stycos et al., 1956), Weller (1968; Weller and Sakoda, 1971), and Michel (1971) have

noted associations of employment of wives with family integration, equalitarian relationships, and communication between spouses. Unfortunately, the *ex post facto* nature of the above studies precludes clear specification of temporal order and thus determination of antecedents of marriage and childbearing patterns.

There are two notable exceptions to this emphasis on *ex post facto* design which seem to indicate that premarital attitudes influence fertility. Westoff, Mishler and Kelly (1957) recontacted, after twenty years, a sample of 300 engaged couples who had originally participated in a study of marital compatibility. Using 154 cases in which sufficient data were available, they report a correlation of .27 between family size preference and cumulative fertility. Although not explicitly considering fertility, Bayer's (1969a; 1969b) analysis of Project Talent data indicates the importance of marital plans and educational desires on subsequent age at marriage. Since it seems reasonable to assume that early marriage would be associated with early fertility, it would follow that these same influences may indirectly influence fertility through timing of marriage.

Reviewers in the field of status attainment research (Falk and Cosby, 1975; Carter and Carter, 1972) have observed that sociological concern with the modeling of processes of individual development is largely attributable to Duncan (1966a, Duncan et al., 1972) who considered the father's occupational status to be an origin status for the child. Socioeconomic background has been similarly treated in the Wisconsin model by Sewell (Sewell et al., 1969;

1970; Sewell and Hauser, 1972), Haller and Portes (1973), Alexander (Alexander et al., 1975), and Wilson and Portes (1975). In these studies, the transmission of parental status to the next generation was presented as partially mediated by academic performance, influence of significant others, and the formation of educational and occupational aspirations.

While research in the field of status attainment has focused primarily on backgrounds and attainments of males, findings hold implications relevant to ~~status~~ attainment processes of women. Duncan, Featherman, and Duncan (1972) introduced fertility, or children ever born to wife, as an intervening variable in the process underlying occupational and income attainments of husbands. In this application, fertility was presented as an outcome of influences of husband's father's education, husband's education, husband's first job, wife's education, and wife's father's occupation. However, as antecedents of fertility, only husband's education and wife's education yielded significant results. The effects of these were negative, indicating an association of higher levels of education with lower actual fertility.

With reference to fertility patterns, number of siblings may also be considered an origin factor of importance (Bumpass and Westoff, 1970; Westoff and Potvin, 1967). On the basis of data from the Growth of American Families Survey of 1955 and the Current Population Survey of 1962, Duncan (Duncan et al., 1965) theorizes that potential parents may seek to recreate family situations familiar to them based on childhood and adolescent experiences. In the

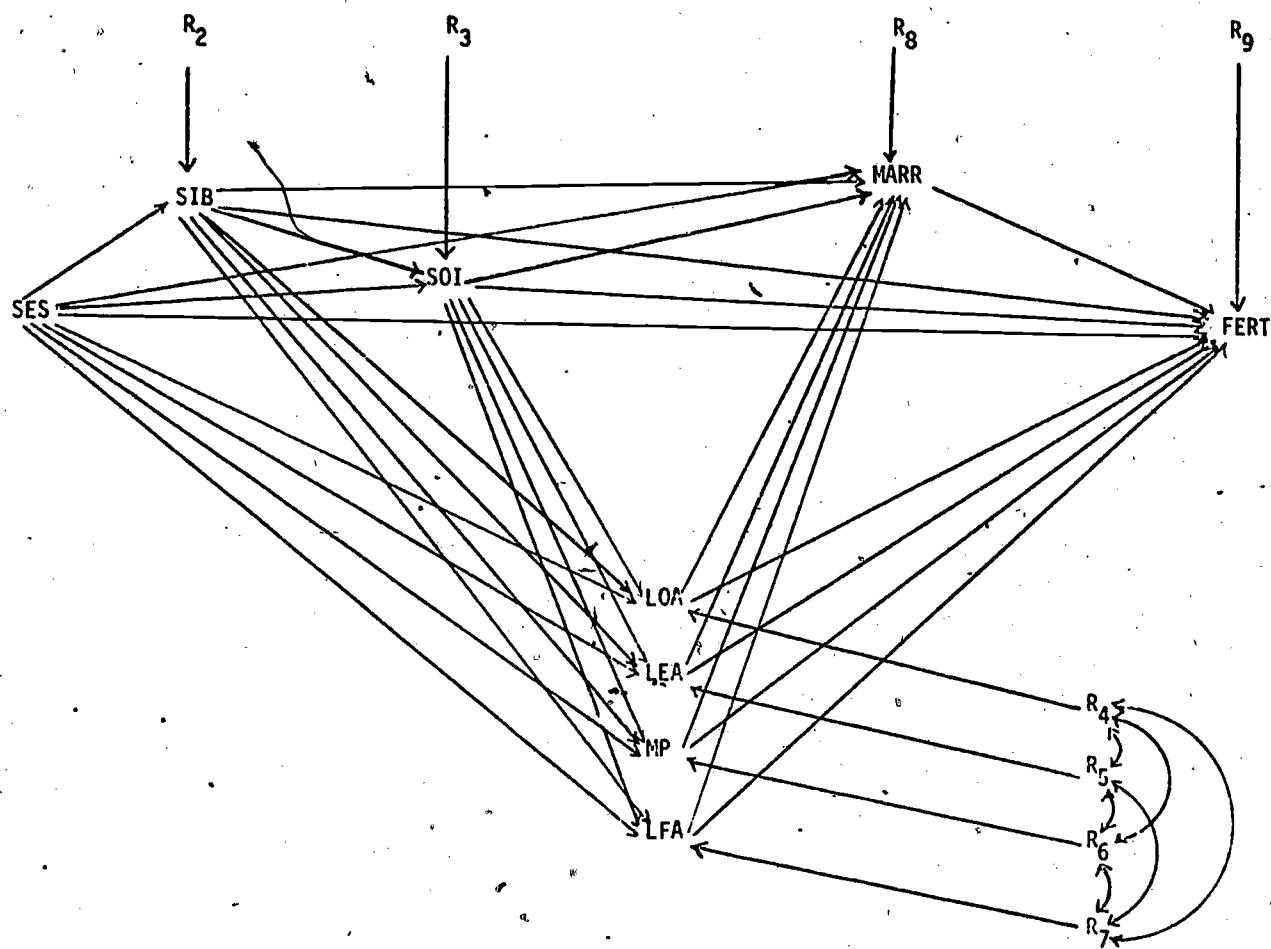
same study, it was also noted that women from large families tend toward lower educational attainment and earlier marriage and child-bearing than women from small families.

Central to the present study are the theoretical formulations of Falk and Cosby (1975). Synthesizing literature regarding female attainment processes, these writers have integrated female sex role contingency factors into the basic Wisconsin Status Attainment model (Sewell et al., 1969, 1970). Social origins influence the nature of significant other encouragement and through such encouragement influence the formation of educational, occupational, marital and fertility aspirations. These attitudes are then proposed as influential on early marital and fertility behavior as well as on socio-economic achievement.

#### The Young Adult Procreation Model

Drawing on the reformulations suggested by Falk and Cosby (1975), a process model of antecedents underlying early marriage and fertility is represented in Figure 1. This model was developed to integrate demographic and status attainment perspectives. It depicts a network of relationships in which the exogenous factor, social origins, influences young adult timing of marriage and fertility through a complex of intervening variables. Parental socio-economic status ( $X_1$ -SES) and family of origin size ( $X_2$ -SIB) result in differential degrees of significant other encouragement for high status occupational attainment ( $X_3$ -SOI). Such encouragement is viewed as an important influence intervening between social

Figure 1. The Young Adult Procreation Model<sup>a</sup>



<sup>a</sup>Variable abbreviations used in the model diagram, tables and text are as follows:

- SES - Standardized composite score of breadwinner's occupation in Duncan's SEI and father's and mother's educations.
- SIB - Number of living siblings in family of origin.
- SOI - Composite score for encouragement of high occupational status attainment. Sources of encouragement - parents, friends, relatives, teachers and high school counselors. (Measured in sophomore year of high school).
- LOA - Level of occupational aspirations (Senior year of high school).
- LEA - Level of educational aspirations (Senior year of high school).
- MP - Marital plans - age respondent desires to marry (Senior year of high school).
- LFA - Level of fertility aspirations (Senior year of high school).
- MARR - Number of years married (four years after high school).
- FERT - Number of children (four years after high school).

7

origins and the formation of late-adolescent aspirations regarding occupation ( $X_4$ -LOA), education ( $X_5$ -LEA), marriage ( $X_6$ -MP), and fertility ( $X_7$ -LFA). Aspirations, so developed, in turn influence timing of marriage ( $X_8$ -MARR) and fertility ( $X_9$ -FERT).

The Young Adult Procreation model was evaluated within a path analytic framework (Wright, 1934; Duncan, 1966b; and Kerlinger and Pedhazur, 1973). Consistent with standard path analytic applications, the model assumes: (1) a non-recursive system, (2) linear-additive relationships, (3) interval or near interval measurement, and (4) appropriate uncorrelated residuals. Path analysis also requires clear specification of directions of influence among variables. The specification problem was minimized by the utilization of three-wave panel data in the operationalization of required variables. Multiple regression procedures were used to obtain the standardized beta values or "path coefficients" required for assessment of the model (Service, 1972; Kerlinger and Pedhazur, 1973).

#### Operationalization and Specification

→ Data appropriate for evaluation of the Young Adult Procreation Model were provided by the Southern Youth Study. Intended to investigate achievement processes of non-metropolitan youth, the Southern Youth Study includes longitudinal data on a panel of non-metropolitan students from selected Alabama, Georgia, Texas and South Carolina high schools. Respondents were initially contacted in their high school sophomore year (1966-1967) when family background and significant other encouragement data were obtained.

Recontacted as seniors in 1968, respondents were questioned regarding status aspirations. In 1972, approximately four years following high school graduation, respondents were contacted for a third time and levels of attainment and procreation were recorded (White, 1974).

The parental socioeconomic status variable (SES-X<sub>1</sub>) represents a composite index derived as the mean z-score of three parental status indicators: level of father's education, level of mother's education, and the occupation of the family breadwinner. Father's and mother's educational levels were recorded on a six item scale ranging from a value of "0" for those who did not attend high school to a value of "5" for college graduates. Family breadwinner's occupation was coded according to Duncan's socioeconomic index (1961). In the calculation of SES, as with other multi-item scales, where one or more items were missing, the remaining data were utilized to estimate the value of the variable. For example, if mother's education and breadwinner's occupation were known but father's education was unknown, SES was estimated using the two known items.

The number of siblings (SIB-X<sub>2</sub>) was defined as the total number of brothers and sisters. The South Carolina questionnaire did not include a question on sibling number. Estimates for this portion of the data were obtained by using, when possible, a parallel question on sibling order (e.g., "only child") or a random assignment missing data treatment.<sup>1</sup>

9

Significant other encouragement (SOI-X<sub>3</sub>) represents an index of encouragement for high level occupational attainment. As sophomores, respondents were asked to name the occupation which they most desired as a lifetime job. The responses to this question were coded according to Duncan's socioeconomic index, and then dichotomized into high and low status categories using the median of 61 as a dividing point. Structured responses were obtained from a second question which asked how helpful parents, relatives, friends, teachers and high school counselors had been in developing the respondent's occupational preference. Responses to this second question were coded with a value of "1" indicating low encouragement (none or some help) and a value of "2" indicating high encouragement (much or very much help). SOI is an index which combines these responses to produce scores with a range of five to ten. A score of "5" indicated the choice of a low status occupation and/or consistent perceptions of low levels of encouragement from each significant other. Scores from "6" to "10" would indicate an aspiration to a high status occupation and high levels of encouragement from one or more of the suggested significant others.

Procedures used to estimate levels of occupational aspirations (LOA-X<sub>4</sub>) and levels of educational aspirations (LEA-X<sub>5</sub>) were designed to approximate the scaling of aspirations developed by Haller and his associates (Haller and Miller, 1971; Haller et al., 1974). "Idealistic" and "realistic" dimensions of aspirations were obtained during the high school senior year by asking the respondent to

indicate both the occupational and educational levels that she "desired" and that she "expected" to attain. Occupational responses were coded in terms of Duncan's SEI. Educational responses were coded according to a six item scale ranging from "quit high school" to "Post-college degree". LEA and LOA were then determined by averaging idealistic and realistic responses.

The remaining attitudinal variables measured during the senior year of high school involved marital plans (MP-X<sub>6</sub>) and level of fertility aspirations (LFA-X<sub>7</sub>). The respondent's expressed desired age of marriage was directly interpreted as an indicator of marital plans. Responses indicating desired ages at marriage greater than fifty were coded as fifty. LFA was represented by the average of the number of children that the respondent desired and expected to have.

Marital timing (MARR-X<sub>8</sub>) was indicated by marital duration and refers to the number of years the respondent had been married at the time of the third interview, approximately four years after the expected date of her high school graduation.<sup>2</sup> Unmarried women were given a code of "0". Low scores on this variable are interpretable as indicating marital postponement. Fertility (FERT-X<sub>9</sub>), the final variable, was defined as the number of children given birth to by the time of the 1972 interview.

#### Findings

The mean and zero order correlations from the Southern Youth Study appear as Table 1. The data described a population of white

Table 1: ZERO ORDER CORRELATIONS, MEANS AND STANDARD DEVIATIONS FOR THE YOUNG ADULT PROCREATION MODEL:  
WHITE FEMALES

N = 176		SES $X_1$	SIB $X_2$	SOI $X_3$	LOA $X_4$	LEA $X_5$	MP, $X_6$	LFA $X_7$	MARR $X_8$	FERT $X_9$
$X_1$	SES	-.168*	.394*	.316*	.543*	-.009	.036	-.171*	-.148*	
$X_2$	SIB		-.134	-.188*	-.244*	.212*	-.076	.115	.221*	
$X_3$	SOI			.435*	.345*	-.014	.015	-.047	-.054	
$X_4$	LOA				.515*	.109	-.081	-.141	-.039	
$X_5$	LEA					.138	.178*	-.301*	-.239*	
$X_6$	MP						-.003	-.235*	-.236*	
$X_7$	LFA							-.094	-.048	
$X_8$	MARR								.442*	
Mean		-.007	2.453	6.025	55.196	3.920	21.210	3.058	2.119	.385
Std. Dev.		.803	1.626	1.600	17.643	1.237	3.723	1.202	1.778	.563
Missing Value Replacements		2	46	1	6	0	0	3	6	2

\* $p \leq .05$

11

females who have experienced relatively low levels of fertility within the four year period following high school, as indicated by the mean fertility figure of .385 children. Thirty percent reported one child, and only 4% reported two or more children. The married status was more prevalent with 66% reporting marriage during this period. This percentage was similar to estimates for comparable age groups in the U.S. population (U.S. Bureau of the Census, 1971). The average length of marital duration was approximately two years. Of the 176 women in the panel, 4% had been married less than a year; 12% had been married less than two years; 22% less than three years; 20% less than four years; and 8% slightly more than four years.

As high school seniors, the women expressed aspirations that largely reflected prevailing American values. An emphasis was placed on college training as indicated by the mean LEA value of 3.9. Similar levels of educational desires were reported by Bayer (1969a, 1969b) using the Project Talent national panel. Aspirations for occupational attainment were also relatively high. The mean LOA figure was 55.2 SEI increments. This mean LOA score exceeds the average aspirational levels reported by Sewell and his associates (Sewell et al., 1970) for each of the six residential categories of Wisconsin male students. The mean level of fertility aspirations was 3.1 children, which is comparable to national trends reported by Blake (1966). The women reported a mean desired age at marriage of approximately 21.2 years. This figure corresponds to the desired age of 20.5 reported for Project Talent women (Bayer, 1969a, 1969b).

Inspection of the correlation matrix in Table 1 reveals fertility in young adulthood to be associated with: (1) early marriage (.442), (2) younger desired age at marriage (-.236), (3) lower levels of educational aspirations (-.239), (4) larger families of origin (.221) and (5) lower parental socioeconomic backgrounds (-.148).

Of special interest was the lack of the expected relationship between adolescent levels of fertility aspirations and actual fertility in young adulthood (-.048). Early timing of marriage, measured in terms of marital duration, was also found to be associated with: (1) younger desired age at marriage (-.235), (2) lower levels of educational aspirations (-.301), and (3) lower parental socioeconomic status (-.171). However, unlike fertility, marital timing was not found to be correlated with family of origin size. Antecedents of adolescent attitude formation, family of origin socioeconomic status and size; and significant other encouragement, were found to be correlated with both LOA and LEA.<sup>3</sup> Surprisingly only family size was significantly related to marital plans and none of the three antecedents were correlated with levels of fertility aspirations.

Table 2 provides path coefficients required for clarification to the above relationships and for evaluation of the paths of influence hypothesized by the Young Adult Procreation Model. The model explained 27.7% of the variation in fertility. Of the five antecedents found to have significant zero order relationships with fertility, only three (MARR, SIB, MP) produced significant direct paths within the context of the model. As might be expected,

Table 2. STANDARDIZED PATH COEFFICIENTS FOR THE YOUNG ADULT PROCREATION MODEL: WHITE FEMALES

N = 176		SIB <del>X<sub>2</sub></del>	SOI <del>X<sub>3</sub></del>	LOA <del>X<sub>4</sub></del>	LEA <del>X<sub>5</sub></del>	MP <del>X<sub>6</sub></del>	LFA <del>X<sub>7</sub></del>	MARR <del>X<sub>8</sub></del>	FERT <del>X<sub>9</sub></del>
X <sub>1</sub>	SES	-.168*	.392*	.156*	.462*	.025	.025	-.055	-.032
X <sub>2</sub>	SIB	-.070	-.114	-.147*	.217*	.072	.072	.104	.219*
X <sub>3</sub>	SOI			.358*	.144*	.005	.004	.063	.028
X <sub>4</sub>	LOA							.010	.155
X <sub>5</sub>	LEA							-.234*	-.110
X <sub>6</sub>	MP							-.226*	-.201*
X <sub>7</sub>	LFA							-.043	.035
X <sub>8</sub>	MARR								.354*
X <sub>9</sub>	FERT								
Multiple R <sup>2</sup>				.028*	.180*	.226*	.336	.046	.006
Residual Path				.986	.916	.880	.815	.977	.997
								.925	.850

\*p ≤ .05.

marital duration exerted the greatest influence on fertility (.354); thus indicating the importance of early marriage and its antecedents in processes underlying fertility in young adulthood.

Directing attention to the path between family of origin size and fertility, it should be noted that the path coefficient (.219) does not substantially differ from the earlier reported simple correlation (.221). This small decline in effects indicates that the influence of SIB on FERT was largely independent of other influences in the model. Consequently, the complex of attitudinal influences (LOA, LEA, MP, and LFA) did not mediate the effects of SIB. This finding, with an additional caveat, seems to support Duncan's contention that prospective parents tend to recreate situations of their families of origin. As SIB was not related to adolescent fertility desires, it could be argued that SIB's influence is delayed and does not become manifest until the actual adoption of parental roles.

The third variable having direct influence on fertility patterns was adolescent marital plans, measured in terms of desired age at marriage. It has been anticipated that this influence would be important in processes leading to fertility, in that MP would indirectly influence FERT through timing of marriage (MARR). This logic was partially supported. Significant paths were found between MP and MARR (-.226) and between MARR and FERT (.354); indicating an indirect effect of -.080. However the major influence of MP on FERT remained direct (-.201). This raises the thorny problem that adolescent desired age at marriage also influenced fertility

independently of other variables in the model, particularly the actual timing of marriage. One possible explanation of this finding is that inquires regarding desired age at marriage required respondents to consider preferential timing of acceptance of adult familial roles. It may then be that respondents broadly conceived of the married status as encompassing the roles of both spouse and parent, rather than perceiving the former as potentially and temporally independent of the later. Should this be the case, questions regarding desired timing of marriage may also tap ideals involving timing of procreation.

The lack of influence of adolescent fertility aspirations on actual levels of fertility deserves further comment in light of the above discussion. While it might be argued that late adolescent fertility aspirations are unrealistic or nonrational, it could also be argued that such aspirations are influential on levels of completed fertility but act independently of attitudes regarding timing of childbearing. Resolution of this question must await further observation of the panel as the women advance through their childbearing years. None the less, present evidence suggests that levels of fertility in young adulthood are influenced more by adolescent aspirations regarding timing of marriage than by adolescent aspirations regarding levels of fertility per se.

Since timing of marriage (MARR) had the strongest and most immediate effect upon fertility, it would follow that an understanding of early fertility implicitly involves the investigation of processes leading to early marriage. Two attitudinal influences

were observed to exert significant direct effects on MARR. The first of these, adolescent marital plans (MP), has been previously discussed in terms of its indirect effects, through MARR, on fertility. It would appear that women are able to translate, at least in part, adolescent marital timing desires into young adult behavior. The second attitudinal influence involved adolescent educational aspirations (LEA). The negative sign of the observed path coefficients (-.234) indicates both a delaying effect of LEA on marital timing, and through MARR, a small indirect effect of LEA (-.083) on early fertility. Several implications are suggested. In the first place, pursuit of post high school educational goals may lead to marital postponement. Conversely, marital and parental statuses may be pursued early in adulthood in lieu of non-familial aspirations. In either case, through their effect on marital timing, educational aspirations indirectly influence fertility levels of young adults.

Having observed the importance of educational and marital aspirations to early marriage and fertility, the next phase in the analysis was to investigate the formation of those attitudes. Only 4.6% of the variation in MP could be attributed to the influence of its antecedents (SES, SIB and SOI). Of the three prior variables, the most important effect was the significant path originating in SIB (.217). Women from larger families tended to desire later marriage. This finding was surprising in that SIB was previously observed to be directly associated with higher levels of early fertility. As a note of caution, it was just as

plausible that the positive relationship between SIB and MP represents an anomaly of the Southern Youth data. Data on Latin American women 20 to 50 years of age and of all marital statuses have indicated very small negative simple correlations, ranging from -.007 to -.091, for nine cities (Centro Latinoamericano de Demografia and Community and Family Study Center, 1972, p. 116). However, the present authors were unaware of reports on American women which allow additional comparisons.

LEA, the second attitudinal variable directly effecting marital timing, was found to be significantly influenced by the three prior variables in the model (SES, SIB, and SOI). Together these explained 33.6% of the variation in LEA. As had been posited in the construction of the model, the formation of higher level educational desires was associated with higher parental status (SES), with smaller families of origin (SIB), and with encouragement for higher occupational attainment (SOI). It should also be noted that SES and SOI were influential in the formation of the other status attitude, LOA.

#### DISCUSSION

Perhaps the most noteworthy finding which resulted from the analysis of the Young Adult Procreation Model was the general observation that young adult marital and fertility behavior was influenced by such antecedents as social origins and adolescent attitudes. This implies, at the least, that an adequate understanding of fertility involves consideration of influences originating early in the feminine socialization process. The formation of status and familial aspirations

during adolescence seemed to play a central part in that process. Women, who in adolescence expressed a younger desired age at marriage, tended to translate their aspirations into both early marriage and fertility. In addition, women who as adolescents desired higher levels of educational attainment were inclined to postpone both marriage and childbearing. From a population policy standpoint, this suggests that decisions of young women regarding marriage and fertility can be partially traced to development and socialization prior to adulthood. Therefore, the pre-marital period becomes a crucial focal point for intervention programs directed to fertility reduction and control.

Interestingly, levels of fertility aspirations influenced neither the timing of marriage nor early fertility. These findings bring into question policy recommendations that argue for the lowering of fertility desires as an approach to the reduction of population growth rates. It is at this point that our analysis tends to contradict extant literature which has generally found, using ex post facto designs, that fertility desires were positively related to fertility. The resolution of this divergence in findings is problematic. In ex post facto research the direction of the relationship is unclear. Do women first develop procreation desires and then attempt to have as many children as they want, or do they simply bring their reported desires into line with the levels of fertility which they have already experienced? In using the Southern Youth data, however, equally difficult problems of interpretation were encountered. Although the longitudinal design of the study establishes the direction of influence, the relationship was

between adolescent desires and "early" fertility rather than between desires and "completed" fertility. If we assume that the panel members plan to delay childbearing and sufficiently control fertility to that end, it is conceivable that adolescent desires ultimately could be correlated with completed fertility. Unfortunately, there is a lack of parallel, longitudinal data sets which could be used to establish the generality of the present findings. To our knowledge, only the study of engaged couples by Westoff, Mishler, and Kelly (1957) provides information on the longitudinal relationship between desired and actual fertility.

Although the present study suggests that adolescent fertility desires are of dubious value as a policy variable, it does indicate other related influences which could prove effective in intervention strategies. There is the simple conclusion that timing of marriage is an important antecedent of early fertility. Consequently, programs which would either intentionally or unintentionally encourage the postponement of marriage would lead indirectly to the reduction of fertility. This argument can be extended to the attitudinal level by focusing on adolescent marital aspirations. The development of desires to marry relatively late, or more generally, the preferred timing of acceptance of marital roles, seemed to be an important antecedent influential on both marital timing and early fertility. Programs that influence that variable may have greater impact on fertility than a direct approach that emphasizes fertility desires per se.

In addition to the formation of marital desires, aspirations for higher educational attainment also appeared to be a variable that

should be considered in population policy. It can be noted that the observed effect of educational aspirations on early marriage was in addition to the effects of marital plans; the effects were additive and statistically independent. Aspirations for higher education encouraged the postponement of marriage even when desires for a relatively early marriage were held. It may be argued that the formation of simultaneous desires for early marriage and high educational attainment constitutes an attitudinal conflict for some women. For economic or other reasons, certain women may be unable to both marry and continue their education. The data suggest that in many instances women who hold such "contradictory" attitudes resolve them by postponement of marriage.

Caution should be exercised in generalizations based on the findings of this study. Without comparable panel data from other populations, it is impossible to determine if our estimates represent general processes, or if they are merely artifacts of the Southern Youth data set. It should also be recalled that the panel was drawn from non-metropolitan white females in the South. The processes underlying marriage and fertility behavior of these women may substantially differ from those of women from metropolitan areas, from other regions, and from other ethnic groups. There is, therefore, a need for additional research to determine the generality of the findings and to extend the analysis so as to more adequately detail the processes underlying marriage and fertility.

20

## FOOTNOTES

<sup>1</sup>A random replacement procedure was used for missing data and uncodeable responses. The number of replacements for each variable is reported in Table 1. The procedure used was an adaptation of the NORM routine from the "Statistical Analysis System" (Service, 1972) using the means, variances, and legitimate ranges from known data. This procedure had the advantage of replacing missing data without producing statistical biases in estimates of means or variances. Given the importance of standard deviations to path analytic (Wright, 1934) and regression techniques, this procedure was deemed more desirable than either substitution of means or listwise deletion. Investigation of alternative approaches such as computations based on correlation matrices (Nygren, 1971) indicated that random substitution produced slightly more conservative results. An appendix table is provided which reports the zero order correlation matrix using pairwise deletions and means and standard deviations before replacements in order for this decision to be evaluated.

<sup>2</sup>So as to distinguish between unmarried respondents and those married less than one year, all portions of years were rounded to the next higher whole number.

<sup>3</sup>The Young Adult Procreation Model (Figure 1) analyses six correlations between residual influences on the four additudinal variables (LOA, LEA, MP and LFA). These correlations were:  $\text{Corr}(R_4R_5) = .384$ ;  $\text{Corr}(R_4R_6) = .162$ ;  $\text{Corr}(R_4R_7) = -.114$ ;  $\text{Corr}(R_5R_6) = .220$ ;  $\text{Corr}(R_5R_7) = .183$ ; and  $\text{Corr}(R_6R_7) = .013$ . An adequate interpretation of these correlations exceeds both the intended scope of and the data available for this article. Residuals correlations can be

interpreted in numerous ways; e.g., as an indication of a common influence(s) external to the model or as an indication of systematic measurement error.

Table A-1. ZERO ORDER CORRELATIONS, MEANS, AND STANDARD DEVIATIONS FOR THE YOUNG ADULT PROCREATION MODEL  
BEFORE RANDOM REPLACEMENTS: WHITE FEMALES<sup>a</sup>

	SES $X_1$	SIB $X_2$	SOI $X_3$	LOA $X_4$	LEA $X_5$	MP $X_6$	LFA $X_7$	MARR $X_8$	FERT $X_9$
$X_1$ SES		-.246*	.396*	.337*	.563*	-.006	.036	-.184*	-.154*
$X_2$ SIB	130		-.192*	-.282*	-.361*	.191*	-.088	.174*	.337*
$X_3$ SOI	173	129		.423*	.344*	-.015	.017	-.047	-.049
$X_4$ LOA	168	126	169		.524*	.108	-.100	-.144	-.060
$X_5$ LEA	174	130	175	170		.138	.181*	-.301*	-.241*
$X_6$ MP	174	130	175	170	176		-.042	-.235*	-.235*
$X_7$ LFA	171	127	172	167	173	173		-.102	-.054
$X_8$ MARR	174	130	175	170	176	176	173		.460*
$X_9$ FERT	172	129	173	168	174	174	171	174	
Mean	-.013	2.438	6.028	55.159	3.920	21.210	3.055	2.119	.379
Std. Dev.	.805	1.730	1.604	17.723	1.237	3.723	1.212	1.777	.564
No. of Cases	174	130	175	170	176	176	173	176	174

\* $p \leq .05$

<sup>a</sup>Zero order coefficients above the diagonal, number of cases with pairwise deletion below the diagonal.

## REFERENCES

Alexander, Karl L., Bruce K. Eckland, and Larry J. Griffin  
1975 "The Wisconsin model of socioeconomic achievement: a replication." *American Journal of Sociology* 81 (September):324-342.

Astin, Helen S.  
1969 *The Women Doctorate in America: Origins, Career, and Family.* Beverly Hills:Russel Sage Foundation.

Bayer, Alan E.  
1969a "Life plans and marriage age: an application of path analysis." *Journal of Marriage and the Family* 31 (August):551-558.  
1969b "Marriage plans and educational aspirations." *American Journal of Sociology* 75 (September):239-244.

Blake, Judith  
1965 "Demographic science and the redirection of population policy." Pp. 41-69 in M. C. Sheps and J. O. Ridley (eds.), *Public Health and Population Change*. Pennsylvania:University of Pittsburg Press.  
1966 "Ideal family size among white Americans: a quarter of a century's evidence." *Demography* 3 (February):154-173.  
1967 "Reproductive ideals and educational attainment among white Americans, 1943-1960." *Population Studies* 21 (September):159-174.  
1969 "Population policy for Americans: is the government being misled?" *Science* 164 (May):522-529.

Blake, Judith and Prithwis Das Gupta  
1972 "The falacy of the five million women: a re-estimate." *Demography* 9 (November):569-587.

Blau, Peter M. and Otis Dudley Duncan  
1967 *The American Occupational Structure.* New York:John Wiley and Sons, Incorporated.

Bumpass, L. L. and C. F. Westoff  
1970 *The Later Years of Childbearing.* New Jersey:Princeton University Press.

Campbell, Arthur A.  
1974 "Beyond the demographic transition." Demography 11 (November): 549-561.

Carleton, Robert O.  
1965 "Labor force participation: a stimulus to fertility in Puerto Rico?" Demography 2 (May):233-239.

Carter, T. Michael and Nancy Carter  
1972 "Status attainment vs. social mobility: alternative or complementary modes of stratification research?" LSU Journal of Sociology 2 (October):12-33.

Centro Latinoamericano de Demografia and Community and Family Study Center  
1972 Fertility and Family Planning in Metropolitan Latin America. Santiago, Chile and University of Chicago.

Davis, Kingsley  
1967 "Population policy: will current programs succeed?" Science 158 (November):730-739.

Duncan, Otis Dudley  
1961 "A socioeconomic index for all occupations" and "appendix b.", Pp. 109-138 and 263-275 in Albert J. Reiss, Jr., Otis Dudley Duncan, Paul K. Hatt, and Cecil C. North, Occupations and Social Status. The Free Press of Glencoe, Incorporated.

1965 "Farm background and differential fertility." Demography 2 (May):240-249.

1966a "Methodological issues in the analysis of social mobility." Pp. 51-97 in Neal J. Smelser and Seymour m. Lipset (eds.), Social Structure and Mobility in Economic Development. Chicago:Aldine Press.

1966b "Path analysis: sociological examples." American Journal of Sociology 72 (July):1-16.

Duncan, Otis Dudley, Ronald Freedman, J. Michael Coble, and Doris P. Slesinger  
1965 "Marital fertility and size of family of orientation." Demography 2 (November):508-515.

Duncan, Otis Dudley, David L. Featherman, and Beverly Duncan  
1972 Socioeconomic Background and Achievement. New York:Seminar Press, Incoporated.

Falk, W. W. Falk and A. G. Cosby  
1975 "Women and the status attainment process." Social Science Quarterly 56:307-314.

Fawcett, James T.  
1970 Psychology and Population. New York:The Population Council.

Preedman, Ronald, David Goldberg, and Harry Sharp  
1954 "Ideals about family size in the metropolitan area." Milbank  
Memorial Fund Quarterly 33 (April):187-197.

Haller, Archibald O. and Irwin W. Miller  
1971 The Occupational Aspiration Scale. Cambridge: Schenkman Publishing Company.

Haller, Archibald O. and Alejandro Portes  
1973 "Status attainment processes." Sociology of Education 46 (Winter):51-91.

Haller, Archibald O., Luther B. Otto, Robert F. Meier, and George W. Ohlendorf  
1974 "Level of occupational aspiration: an empirical analysis." American Sociological Review 39 (February):113-121.

Holstrom, Lynda  
1972 The Two Career Family. Cambridge: Schenkman Publishing, Company.

Kerlinger, Fred N. and Elazar J. Pedhazur  
1973 Multiple Regression in Behavioral Research. New York: Holt, Rinehart and Winston, Incorporated.

Kiser, Clyde  
1962 Research in Family Planning. New Jersey: Princeton University Press.

Kupinsky, Stanley  
1971 "Nonfamilial activity and socio-economic differentials in fertility." Demography 8 (August):353-367.

Kuvlesky, William P. and Angelita S. Obordo  
1972 "A racial comparison of teen-age girls' projections for marriage and procreation." Journal of Marriage and the Family (February):75-84.

Michel, Andre  
1971 "Roles masculine et féminin dans la famille: examen de la théorie classique." Social Science Information 10 (February): 113-135.

Nye, Ivan F. and Lois W. Hoffman, eds.  
1963 The Employed Mother in America. Chicago: Rand McNally Company.

Nygreen, G. T.  
1971 "Interactive path analysis." The American Sociologist 6 (February):37-43.

Pratt, L. and P. K. Whelpton  
1958 "Extra-familial participation of wives in relation to interest and liking for children, fertility planning, and actual and desired family size." In P. K. Whelpton and C. V. Kiser (eds.), *Social and Psychological Factors Affecting Fertility*, Vol. V. Milbank Memorial Fund

Ridley, J. Clare  
1959 "Number of children expected in relation to non-familial activities of the wife." *Milbank Memorial Fund Quarterly* 37 (July):276-296.

Rosen, Bernard C. and Alan B. Simmons  
1971 "Industrialization, family and fertility: a structural psychological analysis of the Brazilian case." *Demography* 8 (February):49-69.

Service, Jolayne  
1972 A User's Guide to the Statistical Analysis System: Student Supply Stores. North Carolina:North Carolina State University.

Sewell, William H., Archibald O. Haller and Alejandro Portes  
1969 "The educational and early occupational status attainment process." *American Sociological Review* 34 (February):82-92.

Sewell, William H., Archibald O. Haller, and George W. Ohlendorf  
1970 "The educational and early occupational status attainment process: replication and revision." *American Sociological Review* 35 (December):1014-1027.

Sewell, William H. and Robert M. Hauser  
1972 "Causes and consequences of higher education: models of the status attainment process." *American Journal of Agricultural Economics* 54 (December):851-861.

Stycos, J. Mayone  
1952 "Family and fertility in Puerto Rico." *American Sociological Review* 17 (October):572-580.

Stycos, J. Mayone, Kurt Back, and Reuben Hill  
1956 "Problems of communication between husbands and wives on matters relating to family limitations." *Human Relations* 9 (2): 207-215.

United States Bureau of the Census  
1971 "Marital status and family status: March 1970." Number 212 in *Current Population Reports*, Series P-20, Washington, D. C.: United States Government Printing Office.

Weller, Robert H.  
1968 "The employment of wives, role incompatibility, and fertility, a study of lower and middle class residents of San Juan, Puerto Rico." *Milbank Memorial Fund Quarterly* 46 (October): 507-526.

Weller, Robert H. and James M. Sakoda  
1971 "A longitudinal study of female employment and fertility in Puerto Rico, 1940-1960." Presented at the 41st annual meeting of the Eastern Sociological Society, New York City (April).

Westoff, C. F., E. F. Mishler, and T. E. Kelley  
1957 "Preferences in size of family and eventual fertility twenty years after." American Journal of Sociology 62 (March): 491-7.

Westoff, C. F., R. G. Potter, P. C. Sagi, and E. G. Nishler  
1961 Family Growth in Metropolitan America. New Jersey:Princeton University Press.

Westoff, C. F. and Raymond H. Potvin  
1967 "College women and fertility values." New Jersey:Princeton University Press.

White, Carolyn D.  
1974 The Social Mobility-Fertility Hypothesis: A Racial and Class Comparison Among Southern Females, unpublished Master of Science Thesis, Texas A & M University, College Station, Texas.

Wilson, Kenneth L. and Alejandro Portes  
1975 "The educational attainment process: results from a national sample." American Journal of Sociology 81 (September):343-363.

Wright, Sewell  
1934 "The method of path coefficients." Annals of Mathematical Statistics 5 (September):161-215.